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United States Department of Agriculture,

DIVISION OF ENTOMOLOGY.

THE BOX-ELDER PLANT-BUG.

(Leptocoris trivittatus Say.)

GENERAL APPEARANCE AND METHOD OF WORK.

This is a plant-bug of the shape indicated in the figure, which, when full-grown, is nearly half an inch in length and of a dark gray color marked with red. In its earlier stages the red predominates, that being the color of the exposed body. It breeds frequently in enormous numbers upon the box-elder (*Negundo negundo*), becoming more numerous in the autumn than at other seasons. The bugs congregate in groups upon the trunks of these trees, and migrate in search of hibernating quarters to fences and the sides of houses, frequently entering houses and other buildings and stowing themselves away for the winter in protected places. They suck the juices of the leaves and more tender growth of the box-elder tree, and have been reported as damaging fruit, such as peaches, plums, and apples.

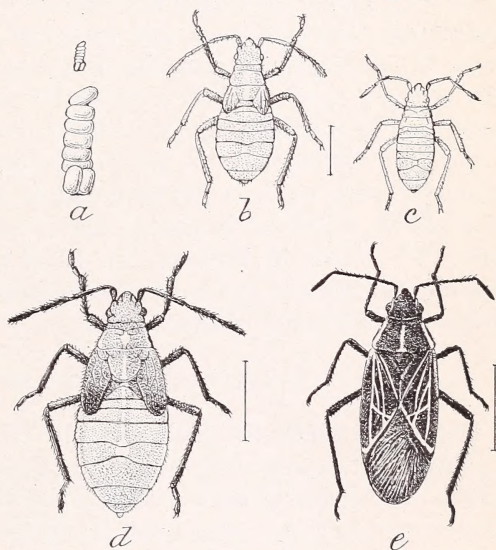


FIG. 1.—*Leptocoris trivittatus*: a, eggs enlarged, natural size above; b, c, d, different stages of immature bugs; e, adult—all enlarged, natural sizes indicated by hair lines. (All after Marlatt, except e, which is original.)

DISTRIBUTION.

In 1880 the insect was known from Colorado, Arizona, California, Kansas, Missouri, Utah, and Mexico. Professor Popenoe, writing in 1880, recorded its abundance upon box-elder at Manhattan, Kans. Dr. Lintner, in 1887, showed that it had not been recorded west of the Mississippi River or north of Missouri. In 1881, however, it had been received at this office from Sioux City, Iowa, from Mr. D. H. Talbot, who, writing under date of November 2, 1881, stated that it was very numerous that autumn and that many specimens were caught in his

office and on the outside of the building, where they were crawling around on the brick walls. In 1885 specimens were received from Ranch, Utah, with an account of damage to apples. As early as 1889 they were received from different parts of Nebraska; in 1891 from the State of Washington, and later from different parts of these States, and from Dickinson, Tex., Idaho, North and South Dakota, various localities in Iowa, Luyerne and Tracy, Minn., Madison, Wis., and Erie, Ill. In 1894 living specimens were received from two Pennsylvania localities, the one from Libonia, where, in December, they were reported as damaging hothouse plants, and the other in August from Kennett Square, where they were found on squashes. These are the only two far eastern occurrences known. Assuming that the box-elder tree is the normal food of the species, it seems likely that the insect will gradually gain the widespread distribution of this tree, and, as when very numerous its capacity for damage to ripening fruit has been shown, it may eventually become a species of considerable economic importance. The insect has been written up by Professor Popenoe in Volume II of the "American Entomologist"; by Dr. Lintner in his Fourth and Tenth Annual Reports as State Entomologist of New York; by Dr. Luggler in Bulletin No. 43 of the Minnesota Agricultural Experiment Station; by Prof. C. V. Piper in Bulletin No. 17 of the Washington Agricultural Experiment Station, and numerous items about it have been published in the seven volumes of *Insect Life*.

NATURAL HISTORY AND HABITS.

During the winter the adult insect hibernates in all sorts of sheltered localities. It is especially abundant in fences, crevices of stone walls, and in the angles of stone buildings, on the south side of which they are reported to appear singly and in clusters upon every warm day during the season. When spring opens and the buds of the box-elder begin to burst they scatter from their hibernating places and seek their food plant. The eggs are laid normally in the crevices of the bark of the food plant, but the instinct of the mother-bug is by no means true, since she will oviposit in almost any situation, frequently even laying eggs in her hibernating quarters. Few of the young hatching from such eggs will ever reach a suitable tree. In Kansas the first adults begin to appear after midsummer and at this time bugs of all sizes begin to congregate in lines up and down the trunks and branches of the trees. According to Professor Popenoe they may frequently be seen crowding in a broad line extending from the ground up to the secondary branches, in a company including larvæ of all sizes, pupæ, and fully matured individuals. When the leaves drop, practically all are full grown and they fly away in search of winter quarters. They feed upon a number of different plants, preferring however, the boxelder. When they fly

into greenhouses they occasionally damage the growing plants in the winter time. They are most frequently sent to economic entomologists with accounts of their fall congregating and also with tales of congregating in houses which they have entered. They are said even to have entered the beds, and one or two accounts have been sent in to the effect that they bite human beings like bedbugs.

REMEDIES.

Spraying the trees in the early part of the season with kerosene emulsion will result in the death of the majority of the immature individuals. When they crowd together in the autumn upon the trunks of the trees they can be readily destroyed with hot water or may be swept *en masse* into kerosene pans. A little industrious work at this time of the year will reduce the numbers of the insect so greatly that little damage need be feared from them the following season.

L. O. HOWARD,
Entomologist.

Approved :

JAMES WILSON,
Secretary.

WASHINGTON, D. C., *January 8, 1898.*

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NOTE.—Since 1898 the insect has been received from many additional localities in the States mentioned on page 2, but no new States appear to have been invaded.—L. O. H., *October 21, 1903.*

